Published by the
American Association of State Highway
and Transportation Officials

444 North Capitol Street, NW, Suite 249
Washington, DC, 20001

(202) 624-5800 *(tel)*
(202) 624-5806 *(fax)*
http://www.aashto.org/main

ISBN 1-56051-045-5
Printed in the United States of America

Contents

Acknowledgments

This guide document was prepared under NCHRP Project 20-7, Task 76. The Task Panel consists of the same persons listed elsewhere in this front material as the AASHTO Task Force on Fiber Optics on Transportation Rights-of-Way. The report was prepared by Apogee Research, Inc., with Dr. Susan Jakubiak serving as Principal Investigator.

1996 AASHTO Subcommittee on Advanced Transportation Systems

Chairman: David R. Gehr, Virginia

ALABAMA:	Robert D. Anderson, Robert J. Jilla
ALASKA:	Joseph L. Perkins, Jim Beeson
ARIZONA:	Timothy M. Wolfe, Dick Wright
ARKANSAS:	Eric Phillips, Steve Teague
CALIFORNIA:	Wayne Henley
COLORADO:	William F. Reisbeck
CONNECTICUT:	William W. Stoeckert, Earle R. Munroe
DELAWARE:	Vacant
D.C.:	Karen G. Benefield
FLORIDA:	Jack A. Brown
GEORGIA:	Steve Parks
HAWAII:	Paul Hamamoto
IDAHO:	Greg M. Laragan
ILLINOIS:	Joseph Ligas, Joseph McDermott
INDIANA:	Dan Shamo
IOWA:	C. Ian MacGillivray
KANSAS:	Mike Crow
KENTUCKY:	David E. Smith
LOUISIANA:	Chris Orillion
MAINE:	John E. Dority
MARYLAND:	Lee N. McMichael, Michael Zezeski
MASSACHUSETTS:	Michael J. Costa
MICHIGAN:	Dr. Kunwar Rajendra
MINNESOTA:	Gary Workman
MISSISSIPPI:	Marlin D. Collier
MISSOURI:	Thomas A. Dollus
MONTANA:	William Cloud
NEBRASKA:	R. James Pearson, Kenneth J. Gottula
NEVADA:	Thomas J. Fronapfel
NEW HAMPSHIRE:	Ansel N. Sanborn
NEW JERSEY:	Jean Servideo, Kurt Aufschneider
NEW MEXICO:	Pete Rahn
NEW YORK:	Thomas C. Werner
NORTH CAROLINA:	Jimmy M. Lynch
NORTH DAKOTA:	Al Covlin

OHIO:	James E. Brenneman, Robert D. Yankovich
OKLAHOMA:	Roger Driskill
OREGON:	John Grassman
PENNSYLVANIA:	Vacant
PUERTO RICO:	Maria Dumois
RHODE ISLAND:	Joseph A. Bucci, Paul R. Annarummo, Thomas A. Conboy
SOUTH CAROLINA:	Richard F. Jenkins, Richard B. Werts
SOUTH DAKOTA:	Mike Young, David Huft
TENNESSEE:	Don Dahlinger
TEXAS:	David T. (Tom) Newbern
U.S. DOT:	Dennis C. Judycki (FHWA)
UTAH:	David Kinnecom, John Njord, Dan Julio
VERMONT:	David A. Ross
VIRGINIA:	David R. Gehr, Charlie D. Hall, James R. Robinson, Dr. Brian L. Smith
WASHINGTON:	John Conrad, David K. Peach
WEST VIRGINIA:	Robert W. Kendall
WISCONSIN:	Philip H. DeCabooter
WYOMING:	Anthony (Bud) J. Schepp

1996 NCHRP Advisory Panel 20-7, Task 76 Fiber Optics Facilities on Transportation Rights-of-Way

STATE	MEMBER
South Dakota	Dean Schofield, *Chairman*
California	Richard Bower
Maryland	Robert D. Douglass
Colorado	R. Bruce Johnson
Texas	Tom Newbern
Washington	David K. Peach
Pennsylvania	William Pickering
Missouri	Dale Ricks
Virginia	James R. Robinson
Tennessee	Mike Shinn
Iowa	Leland D. Smithson
Florida	Ken Towcimak
Vermont	Thomas Viall
Mississippi	Richard Young

Introduction

Across the U.S., public and private interests are building new communications networks on an unprecedented scale. In the public sector, for example, state and local transportation agencies are building sophisticated communications networks to support a variety of traffic and transportation management systems. These systems typically rely on fiber-optic cable, but can also call for conventional copper cable or wireless communications systems support. The private sector is also building networks, but for quite different reasons: rapid technological advances (wireline and wireless) coupled with burgeoning demand for telecommunications has prompted private communications companies to build new networks and expand existing ones.

The coincidence of these demands has spurred interest in public-private arrangements where each party taps the special resources of the other—the private partner gains access to public rights-of-way (ROW) and the public partner gains access to some form of compensation, either in-kind telecommunications facilities or service, cash, or both. Such partnerships, termed "shared resource" projects, have three distinct features:

- Public-private partnership;
- Private longitudinal access to public property (primarily roadway ROW) for telecommunications facilities; and
- Compensation to the ROW owner over and above administrative costs as identified above.

Shared resource projects also can be effected as public-public partnerships in which one of the partners is the ROW owner

and the other is another public agency that would not otherwise be able to longitudinally access the ROW for its own communications infrastructure.

Formulation of shared resource projects has been facilitated, first, by Federal Highway Administration (FHWA) delegation of authority to states to determine their own utility accommodation policies (subject to FHWA approval) and, second, by American Association of State Highway Officials (AASHTO) Board of Directors' recent resolution that recognized fiber optics as distinct from other utilities and sanctioned their longitudinal installation in freeway rights-of-way (see Appendix A).[1]

Although the opportunity to undertake such partnerships is relatively new, it is not untried. Dozens of state and local governments have already successfully negotiated shared resource ventures. Yet the process has the potential to become complicated. Therefore, this guidance, based on lessons from applied experience, is a practical overview for state transportation agencies on how to capitalize on this opportunity.

Opportunity with Limits

While shared resource ventures offer an excellent opportunity for the public sector to meet their transportation communications requirements cost-effectively, the opportunity is not without limits. The reason: shared resource ventures are market-driven. In practice, this has two implications:

- **Time:** Market conditions dictate private vendor interest in developing a partnership and the timeframe available;

- **Value:** There is no inherent value for access to highway ROW or other public property; private vendor willingness to pay for access derives from the telecommunications revenue potential for private firms, tempered by the cost of competing ROW that might be available to those firms.

Of these, timeliness is generally the more critical consideration for public agencies. If the public sector agency is slow to respond, the window of opportunity may close before a partnership is established, and the public agency may have to wait until market expansion or industry restructuring generates new demand for telecommunications capacity and, its adjunct, sites for necessary infrastructure.

[1] Telecommunications facilities have some distinct features compared to traditional utilities. For example, the equipment used is non-hazardous and non-pressurized with low maintenance requirements and long service life. In addition, because telecommunications are required for Intelligent Transportation Systems (ITS) functions, public sector telecommunications are a direct input in increasing safety and traffic operations.

Framework

As for any major project, there are distinct stages and sources of information necessary to proceed with a shared resource venture. A review of those that have been successful reveals two important commonalties:

- Each identified a leader from the start, and
- The agencies involved were willing to take informed risks.

In many cases, for example, agencies wish to have a complete set of documentation prior to proceeding. Those that were successful did not wait for all information, but instead continued forward.

In addition to these important distinctions, each successful project has four major steps, as shown in the accompanying figure on the following page.

1. **Getting Started:** the public agency organizes for action and assembles an information base.
2. **Finding Partners:** the public agency identifies potential partners and their needs, determines conditions for partnership and structure, and enlists participation via a request for proposal or some other solicitation process.
3. **Closing the Deal:** public and private partners negotiate responsibilities, delineate design parameters, and sign the contract.
4. **Following Up:** the public agency monitors current partnership(s) and looks for additional opportunities for new partnerships to continue to add value.

Using This Guidance:

The purpose of this guidance is to identify key elements involved in the implementation of shared resource projects. It is designed as an overview of the steps and activities that are typically involved in the process based on experiences of public agencies that have completed or initiated shared resource projects. In using this guidance, applicable to both freeways and other roadways, readers should bear in mind the following factors:

Four Steps to Shared Resource Projects

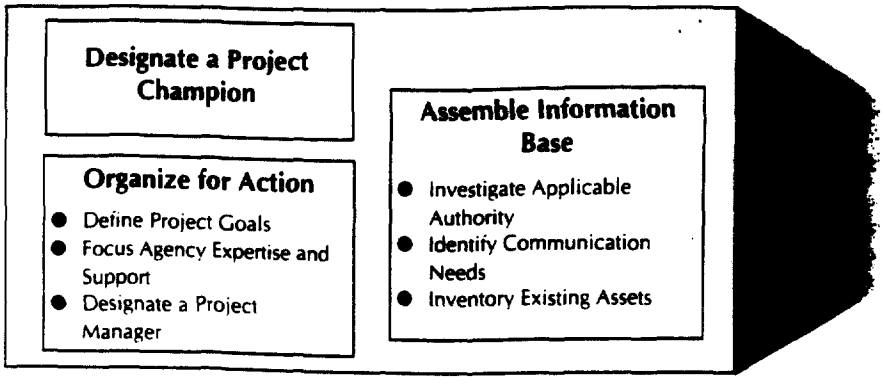
Descriptive rather than prescriptive: No single formula for implementation of shared resource projects exists. Nor is one likely, given the unique circumstances of each state and region. For this reason, this guidance is descriptive rather than prescriptive. It is intended to help public agencies interested in implementing such projects become familiar with the various aspects and issues typically involved in undertaking shared resource projects, consider the merits of alternative approaches, and select the strategies best suited to their circumstances and ultimate objectives.

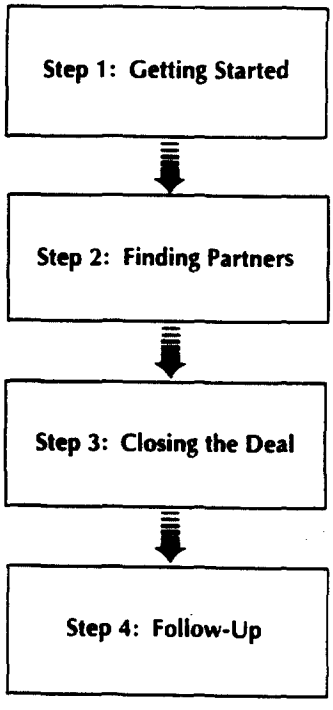
Flexible sequencing: Although the four major steps for implementing shared resource projects described above will generally be undertaken sequentially, the order of the subtasks often varies. For example, individual public agencies may undertake some sub-steps concurrently or develop a customized action agenda based on the available resources and the agency's objectives.

Importance of legal counsel: The Telecommunications Act of 1996 may significantly influence the implementation of shared resource projects across the country. Although this guidance refers to some potential implications of the Act, it is important to recognize that the complete implications of the Act for shared resource projects are as yet unknown. Public agencies are advised to explore carefully potential ramifications of the Act for shared resource projects, track Federal Communications Commission (FCC) rulings and clarifications[2] and, from the outset, incorporate legal counsel such as the state's Attorney General's Office or private consultants.

[2] The appendix to this guidance groups relevant sections of the Act according to "urgency" with regard to shared resource projects.

Step 1: Getting Started





This chapter presents the process for one of the most fundamentally important steps in developing and successfully deploying a shared resource telecommunications venture; setting the stage. Activities fall into three groups:

1 Designate project champion;

2. Organize for action;

3. Assemble information base.

Once the component pieces are in place to the satisfaction of senior management, it is possible to proceed with procurement, contracting and construction. As will be discussed in later sections, the level of detail and completion necessary for each varies, depending on the local circumstances, the urgency of the requirement, and the technical capabilities of the agency itself.

Designate Project Champion

One of the most important lessons from dozens of case studies of successful (and unsuccessful) shared resource initiatives across the U.S. is that the complex and challenging context for this work requires a "project champion" — a single individual with authority and stature who spearheads the effort by: identifying institutional and statutory hurdles, developing consensus and support for shared resource projects, and mobilizing resources within the public sector.

"Typically, it takes approximately 12-18 months from the time a shared resource project is conceptualized to the groundbreaking for actual construction."

This individual is not solely responsible for reconciling conflicts nor for defining the project goals. Instead, the champion is a facilitator who helps to mobilize and organize resources within the agency to organize for action and assemble the necessary information as described in greater detail below. To succeed, the project champion must have high-level support, ideally from the agency's top leadership such as the Chief Administrative Officer or the Chief Engineer.

Organize for Action

Shared resource projects are relatively new to the public sector and agencies are not yet geared to achieving these partnerships efficiently and on the kind of expedited schedule that private partners want. Organizing for action therefore includes the following steps:

- Define project goals;
- Focus agency expertise and support;
- Designate project manager.

Define Project Goals

The first responsibility of the Project Champion is identification of broad goals for shared resources. These goals can change and be refined over time. However, it is important to start with a baseline goal for the process that identifies:

- Primary goal (or goals) for a shared resource venture, such as adding telecommunications capacity or receiving cash payments, and
- Projected project start.

In most cases, it may also be necessary to specify separate goals for wireline shared resource ventures as well as wireless ventures, as the two markets are unique both in terms of their goals and timing. The goal may be as simple as:

> *"...negotiate shared resource projects to support toll collection systems within the next year."*

or more complicated, such as:

> *"...develop partnerships with private telecommunications interests to support department transportation management telecommunications needs, including wireline systems to support real-time video and wireless systems to facilitate management of variable message sign deployment, within the next 6 months."*

Even though many agencies are not familiar with their telecommunications needs at project outset, it will certainly be possible to set out preliminary goals against which future ideas and objectives can be tested. The time component, whether explicitly stated or not, however, is particularly important since the overall potential for a shared resource venture is determined by market forces outside of the control of the agency. Having a target for success will help the agency measure its progress relative to a rapidly changing marketplace.

Focus Agency Expertise and Support

The Project Champion is responsible for organizing the technical committee within the agency, preparing the agenda, and executing that agenda. Potential interests from across the agency may include:

- Finance (including those with expertise on public-private ventures),
- Legal,
- Intelligent transportation systems/telecommunications,
- Right-of-way,
- Procurement, and
- Engineering/construction.

Once the team is assembled, two steps are necessary. First, the Project Champion must educate the technical committee on the background and potential for shared resources. To that end, existing research and outside expertise (communications or business consultants, for example) may be brought in to further substantiate the agency's position and potential for success. Outside expertise may also bring the added advantage of accelerating the education of key interests and reducing the time required to proceed.

Second, the technical committee must agree on the goals for a shared resource venture. Because agreeing to allow access to the right-of-way is unusual for many agency interests, this often requires the demonstrated commitment by high-level agency interests such as the Chief Administrative Office or Chief Engineer through presence at one or more of the technical committee meetings. Ideally, the CAO/CE can be present for the debate and resolution of goals.

"In general, public agencies are not used to operating in a business context which might become a liability during the implementation of shared resource projects. Ensure that personnel well-versed in business issues such as level of compensation and negotiation are included in the team."

Designate Project Manager

Public agency bureaucratic procedure can be daunting to potential private partners. Moreover, time is critical to achieving successful shared resource projects. For these reasons, it is important to designate a project manager or "point person" for shared resource projects — a single individual within the agency who is charged to develop and execute a shared resource project and who likewise has the authority and responsibility to carry the project through to its completion. This person, who may or may not be the project champion, is the sole point of contact or liaison with potential private partners and is the person who shepherds private vendor proposals through the inter- and intra-agency bureaucracy to obtain permits, design approvals, and the like.

Such focus is necessary to ensure that the initiative does not become lost among the many individuals and interests that inevitably become involved and that the understanding of the technical and non-technical issues can reside in a single agency expert capable of identifying the various and potentially conflicting needs of the agency.

Ultimately, the steps in Organize for Action culminate with establishment of "one-stop shopping" where the project manager is the point of contact for all potential private partners — applicants deal only with the manager, who coordinates the process and permitting activities on the public sector side.

Assemble Information Base

The final step for the Project Champion is to assemble technical and non-technical information relevant to shared resources. In certain cases, this will be simple. For example, many states have already developed a state-wide vision for intelligent transportation systems that includes (explicitly or implicitly) telecommunications requirements necessary to support full deployment of those systems. In most cases, however, this work will be new to the agency and much of it will be specific to the state, such as legal interpretation of the state's accommodations policy—the document that describes limitations to access to state rights-of-way.

Like the project goals, however, this information does not have to be complete or definitive to begin the process. In fact, no agency that has undertaken a shared resource venture has had all possible information at the start — many have gone forward and succeeded without it in order to avoid missing an opportunity to undertake a shared resource venture.

"Other ROW such as railroads and non-operating gas pipelines can provide significant competition."

property used for transportation since the conditions under which that property was acquired may affect its availability, for example, property acquired by condemnation might not be available for private sector purposes under some state statutes.

Evaluate Existing Assets

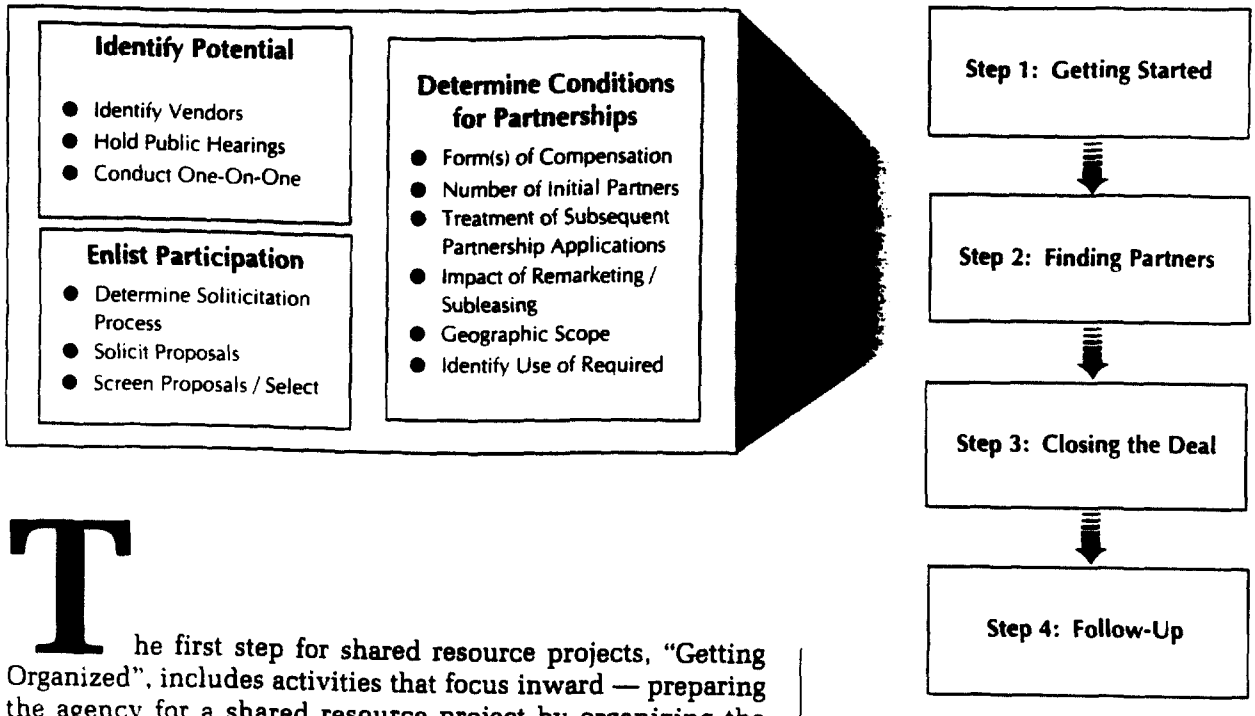
The public agency should seek to estimate the market value of its property, that is, the assets to be shared with the private sector, to ensure that the agency is fairly compensated. Although it is difficult, and sometimes almost impossible, to determine the precise market value of the property, there are six ways to estimate ROW value for either wireline or wireless facilities. These include:

- Competitive auction: high bid(s) in competitive bidding situation assumed to reveal market value of access to public property;
- Valuation of adjacent land: proximate real estate values used a guide to value of highway ROW and other public property;
- Cost of next best alternative: cost of communications infrastructure on highway ROW or other public property compared with total cost of next best alternative site (installation plus access and transactions costs using privately held parcels, railroad or utility ROW, etc.);
- Needs-based compensation: target level of compensation for barter compensation based on public sector communications needs (rather than independent estimates of private willingness to pay or market value);
- Historical experience: data on documented shared resource and commercial lease agreements used as guide to value of access to public property, adjusted to account for differences in property characteristics; and
- Market research: potential private sector partners are contacted to determine interest, partnership conditions, and approximate willingness to pay.

Aside from competitive auction, which may or may not elicit bids at "full market value," no single approach will yield a completely accurate right-of-way value. Several approaches used simultaneously will better pinpoint the range within which market value falls.[3]

[3] For a concise summary of the pros and cons of each valuation approach, see USDOT Guidance on Legal and Technical Issues, cited above. For a more detailed discussion of factors that affect valuation, valuation approaches, and historical data on shared resource project compensation, see USDOT Identification, Review and Analysis of Legal and Institutional Issues, cited above.

Step 2: Finding Partners



The first step for shared resource projects, "Getting Organized", includes activities that focus inward — preparing the agency for a shared resource project by organizing the personnel, resources, and supporting information. The second step focuses outward, on bringing private sector partners into shared resource ventures. Three basic steps are involved in finding partners:

1. Identify potential partners and their needs,
2. Determine conditions for partnership, and
3. Enlist participation.

Steps 2 and 3 signal a paradigm shift in addressing transportation needs because they emphasize a collaborative approach rather than the more traditional procurement process. For example, mutual exchange of information is an important component in Step 2.

Identify Potential Partners and Their Needs

Whether private vendors approach public agencies on their own or public agencies initiate the process of exploring shared resource projects, public agencies can benefit from systematic

outreach to potential private sector partners because a competitive environment can increase the ultimate value of the project. And, given the public sector's responsibility to encourage a competitive climate as well as provisions in the Telecommunications Act of 1996 mandating non-discrimination and no barriers to entry, it is important that public agencies energetically advertise the opportunities available and actively solicit private sector input.

Outreach includes three basic activities:

- ➤ Identify vendors who are potential partners.
- ➤ Hold public meetings, and
- ➤ Conduct one-on-one meetings.

Identify Vendors

Although a number of public agencies have been approached by interested vendors concerning access to public ROW, public agencies should nonetheless actively identify all potential partners both because (1) competition among vendors and/or developing partnerships with several vendors will maximize public sector benefits from shared resources and (2) systematic outreach will ensure non-discrimination among vendors.

There are several ways to identify potential partners and all should be pursued:

- ➤ Contact the state's Public Service/Utility Commission to identify telecommunications providers already active in that state.
- ➤ Place ads in appropriate telecommunications and ITS trade journals, which will reach potential partners not already active in that state as telecommunications providers as well as vendors that are telecommunications resellers rather than retailers/utilities.
- ➤ Review public sector RFP distribution lists for communications and ITS procurements to identify interested vendors that might be missed in the first two steps.

Hold Public Meetings

Public meetings, to which all identified potential partners are invited, are a vehicle for the public agency to officially publicize its position — to express its interest in public-private partnerships, acquaint potential partners with public sector

program on shared resources, and solicit input on private vendor needs. At this meeting, the agency presents the results of "Getting Organized," that is, project goals, relevant information and policy statements, and the contact person for interested vendors. The agency also should encourage attendees to express their views on shared resources, ask questions about the proposed program, and describe their interests so that projects can be responsive to vendor needs.

Conduct One-on-One Meetings

Even vendors that actively participate in the general meetings may not fully reveal their specific interests in an open forum that includes competitors. Thus it is important to conduct one-on-one meetings for a mutual exchange of information; such meetings will help the public agency to fully elicit concerns, identify needs and conditions for partnerships, and hear comments on shared resource projects. There may or may not be a consensus among potential partners but, under either circumstance, the agency will achieve the greatest vendor participation if the proposed program is responsive to vendor needs with respect to site(s), project size, types of compensation, and other project issues.

In light of the importance of arm's length relationships between public agencies (ROW owner) and private firms that may later be involved in a competitive bid selection process, the public partner may find it advisable to retain a consultant or other third party to contact potential private partners on its behalf.

Determine Conditions for Partnerships

These conditions define terms of the relationship between public and private partners and the context within which the partnership operates. Public agencies often have more than one option for specific partnership conditions. The options selected can be a function of vendor preference (as revealed through the preceding activities), agency needs and policy decisions, and/or legal and technical constraints that limit agency choices. Since these conditions may affect partner interest, several issues must be addressed and articulated as agency policy before partners are selected:

- Form(s) of compensation
- Number of initial partners
- Treatment of subsequent partnership applications
- Re-marketing and sublease conditions

➤ Use of design standards and guidelines

➤ Geographic scope

Form(s) of Compensation

Shared resource projects by definition involve compensation over and above administrative costs to the ROW or public property owner; the form that compensation takes can be goods and services, cash, or a combination of both. The choice is determined by: (1) legal restrictions on cash revenues and/or control of receipts by public agencies, (2) public agency need for communications infrastructure and services to support transportation, (3) private partner and public agency preferences.

If the public agency can receive cash and earmark such receipts for its own needs, cash receipts have the advantage of full flexibility — that is, they can be allocated among activities according to need or banked for future needs. Barter, on the other hand, has the advantage of being automatically earmarked for agency use (assuming no legal requirements to open up the communications infrastructure to statewide administration). Barter also enjoys a strong advantage because cost to the private partner of expanding communications infrastructure or providing service is generally less than value to the public partner of such compensation (i.e., the avoided cost). Thus, the public sector may receive barter compensation that is worth more to the ROW owner than the cash that might have been paid.

Barter can also be somewhat flexible. It can, for example, take the form of compensation through services that can be used anytime over a stated time period or infrastructure to be specified and installed at a future date (specified in dollar equivalents but not specified with respect to technical specifications when the contract is signed).

Barter options are quite flexible, and, within reason, are only limited by the goals and ideas of the public sector. A sample of options for barter compensation that have been negotiated or discussed for each of the major communications project types includes:

➤ Wireline projects: fiber optic conduit, inner ducts, and/or dark fiber; equipment to "light" the fiber; equipment maintenance and/or upgrading; operations of communications equipment; future upgrades; cost-free or reduced fee communications service on private vendor system; redundancy on private partner's system.

"For the sake of administrative ease and speed, consider limiting in-kind compensation to conventional cellular support since the agency may already be spending significantly on annual cellular charges."

- Wireless projects: space on private towers (on public or private property) for public sector equipment; installation of public sector antennae; construction of equipment sheds and installation of support equipment; back-up service or redundancy; wireless call box installation; cost-free or reduced fee communications services on private system.

Some feel that in-kind compensation involving communications equipment is easier to achieve for wireline shared resource projects than wireless because wireline projects are more extensive and cover a wider geographic territory whereas wireless projects tend to be very site specific. This means that private partner infrastructure is more likely to coincide with public sector equipment needs in wireline projects, where there are multiple access points and the same fiber that runs from point A to point F can also be tapped to serve needs at intermediate points. And, that fiber can be in the ground even before public sector needs are pinpointed so long as there are sufficient access points to tie in at a later date wherever needs are identified.

"Think in terms of multi-media networks: voice, video and data. Avoid being confined to single medium."

It is true that opportunities for in-kind compensation involving physical equipment may be limited for wireless projects that are negotiated one site at a time. However, barter can also be effected fairly easily for wireless as well as wireline projects. First, a wireless context comparable to that for wireline projects can be achieved if the private and public partners negotiate multiple wireless sites simultaneously so that they form a "system" offering a choice of sites for in-kind compensation now or later on in the partnership. Second, public partners can be compensated in kind with capacity on other towers in the private system, i.e., not on the shared resource site. Third, as noted, free or reduced cost service is a barter option, although different vendors have differing interests in negotiating such service.[4]

However, both wireless and wireline barter arrangements are beneficial only if the public agency has identified unfilled communications needs. And, this means that the public agency must identify its communications needs, at least in general terms, prior to developing partnerships.

[4] In New York, for example, a wireless vendor was willing to provide services at low or no cost as part of the arrangement. On the other hand, one of the vendors interested in Virginia ROW strongly preferred cash transactions.

Number of Initial Partners

Public ROW owners can partner with one or several private firms, and there are a number of basic formats. Most formats are expected to be considered compliant with the Telecommunications Act of 1996; public agencies should, however, keep abreast of FCC and court decisions and, from the outset, consult with their legal counsel. Basic formats include:

- Multiple partners, fixed-fee lease payments; *compliant.*
- Multiple partners, varying cash or in-kind lease payments negotiated on individual basis; ***probably compliant*** so long as differences in compensation are related to differences in conditions.
- Single partner, selected on competitive basis, who intents to re-market or sublease capacity or otherwise accommodate other communications providers; ***probably compliant*** so long as primary tenant charges "fair market prices" for others' access to infrastructure.[5]
- Single partner, selected on competitive basis, who does not provide physical capacity or infrastructure to others but does provide band width or services on a wholesale basis; ***possibly compliant*** but unknown at this time.
- Single partner operating installed capacity exclusively for own business; ***possibly non-compliant.***

Some public agencies form partnerships with any and all vendors that are willing to meet agency conditions. For example, the Ohio Turnpike leases longitudinal access to its ROW to all interested communications firms that want to lay fiber optics for a set fee per mile per year ($1,600). Thus, on any given ROW, there may be several vendors accommodated. Similarly, New Jersey Department of Transportation will, to the extent physically possible, accommodate all requests for access for wireless communications infrastructure along its ROW and on its buildings or other department of transportation (DOT) real estate. Some agencies, such as Maryland and Massachusetts, have applicants form consortiums or prime contractor-subcontractor relationships to accommodate multiple vendors with only one point of contact for the public agency.

[5] Re-marketing and subleasing, as used in this guidance, refer to a primary partner's arrangements with other telecommunications service providers who contract for access to physical infrastructure installed and owned by the primary tenant such as fiber optic conduits or inner ducts, towers for wireless antennae, etc., in order to install their own equipment, or who contract for long-term (exclusive) use of primary tenant infrastructure such as fiber optic strands. Subleasing is used as a general term for the contractual relationship between the primary tenant and secondary tenants, regardless of whether the primary tenant is granted access through a license, franchise, or lease with the public ROW owner.

Other agencies prefer to select a single partner for each specific project. The Telecommunications Act of 1996 clearly may rule out selecting a single partner to construct and operate a physical monopoly, i.e., providing longitudinal access to ROW to one firm for its own use to the exclusion of all competitors.[6] It is likely, however, that subsequent FCC regulations and court decisions will sanction selection of a single partner to manage a marketing monopoly where the partner is chosen in a non-discriminatory manner and no barriers to entry by competitors are erected, i.e., one firm selected through competitive bidding that acts on behalf of the public agency or itself to re-market telecommunications capacity at fair market rates to all interested firms.

Single-partner relationships with wireless telecommunications service providers may be impractical for the simple reason that these firms generally want access to very specific sites and these sites constitute only a fraction of the public agency real estate available for such infrastructure. Contracting with a single such partner would unduly limit public sector partnership options. Public interest would be better served by contracting with as many wireless vendors as possible or by contracting with a single construction-marketing agent that works with all private communications vendors.

Treatment of Subsequent Partnership Applications

After the initial partnerships are formed and even after the projects are constructed, other vendors may apply for shared resource partnerships. The agency must decide whether to accept new partners and, if so, how to deal with subsequent applications. There are several options:

- **One time window of opportunity:** Applications are only considered during stated time period defined by the public agency; no subsequent applications will be considered.
- **Limited window of opportunity with potential re-opening:** Applications are considered during stated time period defined by the public agency; post-deadline applicants must wait until the agency decides on another window of opportunity.
- **Open application period:** Applications are considered whenever received, subject to physical capacity constraints.

"One potential problem with co-location is that the major vendors want physical exclusive equipment and infrastructure and may not want to share the vaults or conduits with others. Propose construction of separate inner ducts. For example, a common main vault open to all partners with separate inner-vaults to which only a specific partner has the key."

[6] Exceptions may be made for rural utilities that are protected from competition in the interests of supporting universal service in low density, high cost areas. Future FCC rulings and interpretations will determine if and under what conditions, physical monopolies for other telecommunications providers are compliant.

Approach	Pro	Con
One-time window of opportunity	Imposes time limit on administrative involvement with partner selection; construction on specific ROW segments minimized by installing infrastructure at one time.	Total number of partners and therefore total compensation to public agency may be restricted; possibly interpreted as barrier to entry.
Limited window of opportunity	Imposes time limit on administrative involvement with partner selection; construction on specific ROW segments minimized by installing infrastructure at one time; allows expansion later at public agency's discretion.	Total number of partners and therefore total compensation to public agency may be restricted; possibly interpreted as barrier to entry, though planned "reopening" of window may address barrier issue.
Open application period	Clearly a non-discriminatory and no-barriers approach; probably enhances total compensation received by public agency.	Extends period of construction/installation on ROW, thus poses safety concerns and danger of damage to existing infrastructure; ongoing administrative burden.
Planned excess physical capacity	Easy to accommodate subsequent applicants without disruptive construction on ROW.	Can impose some financial burden on initial partners (though costs of incremental capacity are a fraction of total costs); may discourage primary tenant(s) if perceived as threat to their customer base (diversion of demand to subsequent applicants).

"In master lease, specify how first tenants must permit access by subsequent tenants under certain lease terms and rates, subject to physical capacity. For example, specify that first tenant must construct a facility that is physically capable of supporting at least 2 additional vendors"

- **Planned excess capacity:** Initial construction includes excess physical capacity (conduits, inner ducts, dark fiber), which is available for subsequent applicants on a cost-reimbursement or fair-market lease payment basis.

All of these approaches have been used. The pros and cons from the public agency point of view are summarized in the table above.

Subsequent applicants may want access to the same property already occupied by initial partners or to property not involved in existing projects. For both wireless and wireline projects, adding new partners to existing projects may require additional capital investment — for wireless: reinforcing towers, building new or expanding existing equipment sheds; for wireline: laying new conduit, pulling inner ducts or fiber through existing conduit. Given the safety issues and expenses of re-opening wireline trenches or plowing in new conduits and fiber, planning how to deal with subsequent applicants is probably more important for wireline partnerships than wireless.

Impact of Re-marketing/Subleasing

Generally, private partners assume full responsibility for re-marketing and subleasing capacity in conduit, inner ducts, or on towers in shared resource projects. Such efforts enhance their revenue from the project and ensure non-discrimination and no barriers to entry, that is, compliance with the 1996 Telecommunications Act. Under the terms of many shared resource partnerships, public agencies also have a direct interest in re-marketing or subleasing because their compensation is tied to the success of those efforts in one or both of two ways:

- Construction gets underway only after planned capacity is successfully subleased, for example, in the NY Thruway project. That is, communications infrastructure — both public sector and private — will be constructed only after a targeted level of subleases have been negotiated (with limits on how long construction can be postponed).

- Public agency cash compensation is based in whole or in part on sub-lease revenues. For example, under the terms negotiated by NJ DOT, the DOT receives half the revenue when its wireless partner(s) sublease space on their towers to other wireless providers (sublease rates for sublessees are the same as stated in the master lease for the primary tenant).

Although contract negotiations will determine whether or not compensation is affected by re-marketing efforts, the ROW owner should explore the basic options in advance so that officials are aware of the benefits and implications of different approaches. Public agencies should be aware, however, that their pro-active participation in re-marketing of capacity, subleasing and/or involvement in revenue determination may be construed as acting as a public utility, thus conferring both the benefits and compliance responsibilities associated with public utilities in that particular state.[7]

Use of Standards and Adopted Guidelines

Since many of AASHTO's guidelines and other standards were prepared prior to the widespread development of telecommunications and shared resource opportunities, these materials may not directly address the needs of these projects. Care should be taken in application of the standards which may not

[7] Some have postulated that public ROW owners could be classified as public utilities if partnerships involve revenue sharing, that is, the public partner's compensation is proportionally related to sublease revenues rather than a fixed "tariff" rate. This may depend on what is being subleased, that is, whether it is considered real estate (tower site, inner duct) or communications services, and whether compensation is based on a standard rate schedule or negotiated individually for each sublease.

be oriented toward shared resource projects. In fact, some standards and specifications now used may contradict or preclude shared resource projects and changes or deviations can be the subject of the negotiation process. The following concerns should be kept in mind:

- Safety considerations should always be emphasized — e.g., protecting clear zones, preserving sight distances, regulating construction zone safety, etc.
- Geometric standards that may not directly effect safety but could permit accommodation of telecommunication facilities such as longitudinal location of wireline equipment in the median, shared maintenance zones and facilities, etc., may be negotiated.
- Administrative guidelines which may constrain the negotiation process and restrict the opportunity for shared resource projects should be subject to the negotiation process.

Adopted standards and guidelines can be modified, with care, to make the shared resource project beneficial to all users. Use of the appropriate processes to make modifications which recognize the advent of telecommunications shared resources projects, should be brought to the attention of the decision makers both prior to and after negotiations.

Geographic Scope	Factors to Consider	
	Wireline Projects	**Wireless Projects**
Large Scope	Requiring a large scope can allow the agency to leverage ROW segments most desired by private partners to obtain infrastructure for public sector along more extensive ROW; reduce chance of gaps in public sector backbone. This may, however, discourage smaller vendors as direct partners, though they can sublease from primary partners.	Requiring a large scope may not be possible and may discourage partners: cellular vendors are not generally interested in full system, only filling in (increasing density) on established systems; PCS vendors interested in full systems but are still geographically focused on urbanized areas. Therefore, emphasis should likely be on making large scope available.
Small Scope	Defining a small scope encourages smaller vendors to participate. Large vendors may then seek to apply for several projects to achieve full system, but may also be discouraged if only one partner picked each project, adjacent projects are not forthcoming at same time. May leave gaps in public sector backbone.	Single site projects may encourage partnerships because projects are responsive to vendor-specific needs, but may not be deemed attractive enough to merit respective public and private investments in process to succeed.